Reservoir Operations *Study*

water quality

FACT SHEET

TVA

Impact Evaluation on Water Quality

The purpose of the study is to determine if changes in TVA's reservoir system operating policies would produce greater overall public value.

Background

TVA is conducting a formal reevaluation of its policies for operating the Tennessee River reservoir system, including an analysis of the economic impacts of any potential changes in these policies. Existing policies affect how much reservoir levels fluctuate, when changes in reservoir levels occur, and the amount of water flowing through the reservoir system at different times of the year, depending on rainfall.

The purpose of the study is to determine if changes in TVA's reservoir system operating policies would produce greater overall public value. Technical analyses will be performed to evaluate the impacts of TVA's current policies and the potential impacts of alternatives on a number of resource areas and other issues.

The two-year Reservoir Operations Study (ROS) is scheduled for completion in October 2003.

The impacts on water quality will be evaluated as part of the ROS, and the results will be documented in an Environmental Impact Statement (EIS). TVA will conduct the study in accordance with National Environmental Policy Act (NEPA) requirements.

Potential Impacts

- Water quality in the streams and reservoirs of the Tennessee Valley is important for aquatic life, recreation, water supplies, and economic development. The Valley is generally blessed with abundant water resources of good quality. Streams and reservoirs are protected by state water quality criteria and state regulation of pollution sources.
- Waters that do not have suitable quality for their designated use are identified in the state 303(d) lists and 305(b) reports.
- Changes in reservoir system operating policies can have both positive and negative impacts on water quality.
- TVA reservoirs can have a beneficial effect on downstream water quality by trapping or settling out sediment and some potential pollutants and by providing higher flows during dry periods. Some problems, such as the depletion of dissolved oxygen, are worsened by the impoundment of water in reservoirs.
- Changes in reservoir policies can affect water quality by changing the depth of a reservoir, how long water is held in the reservoir, and the timing and size of discharges from a dam.
- During the warmer months, some reservoirs experience thermal stratification, that is, warm water near the surface and colder water near the bottom.
- This condition can reduce the dissolved oxygen in the reservoir that is essential to fish and other aquatic life.

- Low dissolved oxygen levels can result in the production of undesirable substances from reservoir sediments, including ammonia, hydrogen sulfide, iron, and manganese, which affect aquatic life, recreation, and water supplies.
- Low oxygen and its by-products can also impact downstream tailwaters when reservoirs discharge water through low-level turbine intakes. For this reason, TVA provides for the aeration of releases from 16 reservoirs and maintains minimum flows, which improve conditions for downstream aquatic life.
- Changes in reservoir operations can have implications for water supplies and wastewater discharges, including the degree of treatment needed, the reservoirs' capacity for waste assimilation, compliance with state discharge permits, and relationship to water quality criteria.

Geographic Areas

- The region that will be evaluated includes reservoirs above and tailwaters below dams in the Tennessee River and its tributaries. The evaluation region extends downstream to the discharge from Kentucky Dam.

Scope of Analysis

- The methods of analysis include:
  - — Assessing and summarizing existing water quality conditions using available data
  - — Evaluating the effects of existing policies and alternative operating policies on water quality using numerical models
  - — Comparing each alternative and assessing potential impacts on beneficial water use.

For More Information

To submit comments or get additional information, members of the public are invited to visit TVA's Web site at www.tva.com, to call toll-free 888-882-7675, to fax TVA at 865-632-3146, or to write to ROS Project Manager David Nye, Tennessee Valley Authority, c/o WT 11A, 400 West Summit Hill Dr., Knoxville, TN 37902.